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Appellants : David L. Myers
Serial No.: 09/340,771
Confirmation No: 4334
Filed: June 28, 1999
For: Fibrous Electret Polymeric
Articles

Docket No.: 13944
Group: 1771
Examiner: Christopher C. Pratt
Date: August 1, 2003

Brief on Appeal to the Board of Patent Appeals and Interferences

MAIL STOP APPEAL BRIEF – PATENTS
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Sir:

Pursuant to 37 C.F.R. 1.192, Appellant respectfully submits this Brief in support of his Appeal of the Examiner's **Final Rejection** of claims 1-26 mailed on December 3, 2002.

On April 3, 2003, Appellant, pursuant to 37 C.F.R. 1.191, timely mailed a Notice of Appeal with a one month extension of time. Thus, the time period for filing this Brief ends on August 3, 2003, as extended by a petition for a two-month extension of time submitted concurrently herewith.

In accordance with 37 C.F.R. 1.192(a) this Appeal Brief is filed in triplicate.

Real Party in Interest

The present Application has been assigned to Kimberly-Clark Worldwide, Inc.

Related Appeals and Interferences

At this time, the Appellant and Appellant's representative are not aware of any related appeals or interferences which will directly affect or will be directly affected by or have a bearing on the Board's decision in this pending appeal.

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Status of the Claims

Claims 1-26 remain in the application. Claims 1-26 stand finally rejected.

Status of Amendments Filed Subsequent to Final Rejection

No amendments to the claims were filed subsequent to the Final Rejection.

Summary of the Invention

The present invention relates to a polymeric electret material or an article containing the polymeric electret material. The polymeric material is a mixture of a thermoplastic polymer and from about 0.1% by weight to about 25% by weight of a miscible thermoplastic telomer. The telomer must be substantially compatible (miscible) with the thermoplastic polymer. (See page 4, lines 15-19). The polymeric material is formed into a porous polymeric material and has an electrostatic charge. The porous polymeric material may be a striated or fibrillated film, a woven fabric, a foam, a nonwoven web or sintered porous substrates (see page 7, lines 5-7). Articles can be made from the porous polymeric material, including face masks, sterilization wraps, dust wipes or air filters, just to name a few articles. (See page 10, line 17- page 11, line 8). Using the mixture of the present invention, many of the problems outlined in the prior electret material mentioned on pages 2 and 3 of the present specification are avoided.

The Issues Presented

The following issues are presented for review:

1. Whether the Examiner erred in rejecting Claims 1-13, 16-23, 25 and 26 under 35 U.S.C. § 103 as being obvious to one of ordinary skill in the art at the time the invention was made and thus unpatentable over Rousseau et al. (U.S. Patent 6,002,017) in view of Bates et al. (U.S. Patent 5,955,546).
2. Whether the Examiner erred in rejecting Claims 14, 15 and 24 under 35 U.S.C. § 103 as being obvious to one of ordinary skill in the art at the time the invention was made and thus unpatentable over Rousseau et al. (U.S. Patent 6,002,017) in view of Bates et al. (U.S. Patent 5,955,546) and Midkiff et al. (U.S. Patent 5,707,735).

Grouping of the Claims

Claims 1-13, 16-23, 25 and 26 stand or fall together as they related to issue 1 above.

Claims 14, 15 and 24 stand or fall together as they related to issue 2 above.

Argument**Issue 1**

Claims 1-13, 16-23, 25 and 25 are novel and unobvious and thus are patentable over the combination of Rousseau et al. (U.S. Patent 6,002,017) and Bates et al. (U.S. Patent 5,955,546).

Rousseau et al. teaches an electret material comprising a nonconductive thermoplastic polymer and an organic additive which is a compound or oligomer containing at least one perfluorinated moiety having a fluorine content of at least about 18% by weight, a triazine compound or oligomer containing at least one nitrogen atom in addition to those in the triazine group, or a combination thereof. In Example 2, it is suggested that a fluorotelomer dispersion may be used as the additive; however, this telomer dispersion is not miscible with the polypropylene. Column 12, lines 55-59 of Rousseau et al. state that the fluorinated additives may be bloomed to the surface of the fibers, which is a clear indication that the fluorinated compounds suggested by Rousseau et al. are not miscible with the nonconductive thermoplastic polymer. Rousseau et al. fails to teach the addition of a telomer which is miscible with the thermoplastic polymer, as required by the present claims.

To remedy this deficiency, the Examiner relies on Bates et al. to show the creation of miscible polyolefin blends used to form films or molded articles, finding that Bates et al. teaches adding Appellant's claimed telomers "as functional end groups". The Examiner surmises that such a combination would have been obvious to a person having ordinary skill in the art "motivated by the desire to functionalize Rousseau's fibers."

First, it is pointed out that the Examiner's statement of the rejection is unclear and is subject to more than one possible interpretation. In the Office Action dated July 3, 2002, after acknowledging that Rousseau et al. does not teach the Appellant's claimed telomer, the Examiner states:

"Bates is concerned with the creation of miscible polyolefin blends used to form films. Bates teaches adding applicant's claimed telomers as functional end groups (col., 22, lines 38-65). It would have been obvious to a person having ordinary skill in the art to add the functional end groups of Bates to the polymer composition of Rousseau. Such a combination would have been motivated by the desire to functionalize Rousseau's fibers".

It was unclear to the Appellant whether the rejection is based on the position that it would have been obvious to 1) add a telomer of Bates et al. to the composition of Rousseau et al.; 2) to functionalize the end groups of the polypropylene of Rousseau et al. with the functional groups of the telomers of Bates et al.; or 3) to functionalize the additives of Rousseau et al. with the functional groups of the telomers of Bates et al, motivated by the desire to functionalize the fibers of Rousseau et al.

In the Advisory Action mailed on March 14, 2003, the Examiner has, "for the purposes of clarification" (Advisory Action page 2), restated the obviousness statement. The Examiner states:

"Rousseau teaches a polymer composition comprising polyolefins. Bates teaches a polymer composition comprising a polyolefin, which has been modified with a telomer. The telomer is added as a miscible functional end group. It would have been obvious to modify the polyolefins of Rousseau with the telomer taught by Bates. Motivation for the combination comes directly from Bates' teaching that it is desirable to "functionalize" polyolefins in order to "confer further utility on the polyolefin (col. 22, lines 37-40)"

Appellant will therefore base this appeal on the clarified motivational statement made in the Advisory Action by the Examiner, since this is the Examiner's latest and clearest motivational statement supplied.

In the new statement of the rejection, the Examiner is stating that it would have been obvious to add the telomer of Bates et al. to the composition of Rousseau et al. to confer further utility to the polyolefins of Rousseau et al. Appellant views this rejection on the basis that the Examiner is stating that other additives, such as telomers disclosed by Bates et al. can be added to the composition of Rousseau et al., in addition to the telomers which Rousseau et al. may add to improve the charge of the material when impinged with jets of water.

Turning to Bates et al., this patent is directed to forming melt miscible blends of polyolefins, one of which is a primary polyolefin and the second is a modifying polyolefin. As described in Bates et al., the invention in Bates et al. is the discovery that polyolefins having similar macromolecular conformations per unit volume are miscible in the melt.

(See column 2, lines 6-36 of Bates et al.) As defined in column 3 of Bates et al., the modifying polyolefin has a segment length which is 85% to 115% of the primary polyolefin length. (See column 3, lines 28-44). As described in the paragraph bridging columns 4 and 5 of Bates et al., the modifying polyolefin may be compatibilized with the primary polyolefin by several methods, including adding functional groups to the modifying polyolefin. The Examiner finds that the statements in Bates et al. at column 22, lines 38-51, provide motivation to add a functionalized melt-miscible polyolefin to the electret material of Rousseau et al., "to confer further utility on the polyolefin".

The further utility mentioned by Bates et al. provided by the modifying polymers having reactive terminal groups includes, increased melt strength of the primary polyolefin, to increase the modulus of the primary polyolefin and to increase the rate of crystallization of the primary polyolefin (column 4, line 59 - column 61, line 1). Other properties of the primary polyolefin which may be modified using the functional groups on the modifying polyolefin include an increase of the polarity of the surface of the primary polyolefin, which thereby provides increased paintability, printability, and adhesion toward polar substrates (column 5, lines 1-5). Further, Bates et al. discloses in column 23, lines 57-65, that reactive groups on the modifying polyolefin enable the modifying polyolefin to perform additional features. These additional features include increased polarity or hydrophilicity at the surface of the primary polyolefin (column 23 lines 57- 59) and to provide **antistatic** properties to an article made from the blend of the primary polyolefin and the modifying polymer (column 23, lines 64-65).

Electret materials have a static charge. The modifying polymer of Bates et al., when containing reactive groups, may have **antistatic** properties, as is clearly stated by Bates et al. Why would one skilled in the art add a modifying polymer to the composition of Rousseau et al. for the purposes of conferring further utility of the polyolefin of Bates et al., where the further utility includes or may include antistatic properties? In fact, Rousseau et al. specifically teaches away from adding a component such as an antistatic agents which could increase the electrical conductivity or otherwise interfere with the ability of the films to accept or hold electrostatic charges (See column 11, lines 15-19 of Rousseau et al.). Adding an additive which has antistatic properties to a composition used to produce the article of Rousseau et al., which is desired to have an electrical charge, would destroy or inhibit the ability of the articles of Rousseau et al. to hold a charge. Therefore, one skilled in the art would not have been motivated to add

the modifying polymer with reactive terminal groups to the composition of Rousseau et al., since such a modification would render Rousseau et al. unsatisfactory for its intended purpose and Rousseau et al. clearly teaches against such a modification. It is well established in U.S. Patent Law that if a proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 221USPQ 1125 (Fed. Cir. 1984).

Further, Rousseau et al. states in column 1, lines 54-57, that resins used in preparing electret media are generally required to be free of materials which increase electrical conductivity or otherwise interfere with the ability of the fiber to accept and hold an electrostatic charge. It was generally known to those skilled in the electret art, at the time the invention, that the presence of polar groups on the surface of an electret article, reduces the ability of the electret material to hold a charge. See the attached article "Studies of Polymer Electrets. III Charge Decay Behavior in Polar Polymer Homoelectrets" Journal of Applied Polymer Science (1982) 27(6) 1967-75, which was attached to the Response to the Final Rejection filed on February 26, 2003. As is stated in column 23, lines 57-65 of Bates et al., other properties of the reactive groups include increasing the polarity or hydrophilicity of the surface of the modified polymer. Again, having a polar or hydrophilic surface on a material will hinder the ability of the material to hold a charge because absorption of water molecules on the surface of the hydrophilic surface would screen and/or compensate any electrical charge. Therefore, the other functions the reactive groups suggested by Bates et al. will also destroy or hinder the material of Rousseau et al. from holding a charge. Clearly, this goes against the teaching of Rousseau et al., thereby making the material of Rousseau et al. unsatisfactory for its intended purpose.

Prior art references can only be combined where there is a reasonable expectation for success. *In re Merck & Co., Inc*, 231 USPQ 375 (Fed. Cir. 1986). In the present rejection, there is no reasonable expectation for success. One skilled in the art reading both the Bates et al. and Rousseau et al. references would not have a reasonable expectation for success of producing an electret material. Rousseau et al. teach that additives which increase electrical conductivity or interfere with the fibers' ability to hold or accept an electrical charge should be avoided. The reactive groups of the telomer of Bates et al. are stated as having antistatic properties or tend to increase the polarity or hydrophilicity of the polyolefin being modified. One skilled in the art would expect that such additives would reduce the ability of the polyolefin to accept or hold a charge. Therefore, one skilled in the art would not reasonably expect success

in producing an electret material from the polymer mixture as suggested by the Examiner. Hence, the combination of Rousseau et al. and Bates et al. does not establish a *prima facie* case of obviousness for this additional reason.

The Examiner, in the Final Rejection, dismissed the similar arguments regarding the teaching of Bates et al., stating that the increase in hydrophilicity and antistatic properties was from an embodiment of Bates et al. which was not relied upon in the rejection. On page 3, second paragraph of the Final Rejection, the Examiner states

"[h]owever, Bates et al. teaches the addition of a telomer to increase the polarity and bondability (column 23, lines 20-21). Bates teaches increased hydrophilicity and antistatic properties to be achieved with the use of 'reactive monomer units (col. 23, lines 25-26 and 56-65)'. Bates only teaches the use of these reactive groups as an optional "further embodiment (col. 23, line 24)". These further embodiments are not relied upon by the examiner and are not germane to the instant rejection".

The Examiner appears to be misreading Bates et al. Starting at column 22, line 38, Bates et al. states that the melt-miscible polyolefin can be functionalized. Functionalization is then described as terminating an anionic polymerization with "a reactive (i.e. functional) group" (column 22, lines 41-42). Therefore, Bates et al. is using the terms "functional" and "reactive" interchangeable. To further support that the terms are used interchangeable, column 22, lines 46-65 of Bates et al., describes termination with other molecules to give co-functional and α,ω -difunctionalities, which are known as telomers. Bates et al. goes on to describe the "reactive terminal molecules which provide a terminal functional fragment". At column 23, lines 57-65, the functions of the reactive groups (functional groups) are described. Therefore, Appellant reads this description as a description of the reactive (functional) groups described at column 22, lines 51-65, not a description of the reactive monomer units which the Examiner believes this paragraph to cover. This is especially true since Bates et al. always refers to the reactive monomer units as "reactive monomer units".

In any event, the α,ω -functional telomers defined by Bates et al., have terminal functional (reactive) fragments of the groups described in column 22, lines 51-65. As is stated in column 23, lines 8-24, the functionalized modifying polyolefin, modified with the groups described in column 23, lines 15-18, which are most of the groups described in column 22, lines 51-65, impart an increased surface polarity for increased paintability, bondability and adhesion to glass (column 23- lines 18-21). The Examiner never addresses the issues of increased polarity, paintability, bondability and adhesion to glass. These properties are all due to the increase in the polarity and therefore, hydrophilicity, of the surface of the blend. As is well known in the art, the surface chemistry of the substrate plays a critical role in determining the

ability of a surface to be bonded, coated or painted with an adherend. Polar surfaces are easier to coat than non-polar surfaces. See "Industrial Adhesion Problems", edited by D.M Brewis et al., John Wiley & Sons, New York, New York, 1985 (pp. 5, and 185-188).

In the Advisory Action, the Examiner states that Bates et al. teaches telomers with groups that are not polar, but does not support this statement with any evidence from Bates et al. which suggests that non-polar reactive terminal groups should be selected or the advantages of selecting such a terminal in terms of conferring further utility. Only telomers with polar groups are described in any detail, and as conferring further utility on the polyolefin. No motivation has been supplied by the Examiner for using a telomer with non-polar groups. In fact, in the Final Rejection, the Examiner focuses on the increased polarity and bondability as the motivating factor for selecting a telomer. Rousseau et al., clearly teaches that components having an adverse effect on the polymeric composition should not be added to the composition of Rousseau et al., as stated above. Therefore, the only motivation supplied by the Examiner would make the Rousseau et al. reference unsatisfactory for its intended purpose and the modification is clearly contrary to the teachings of Rousseau et al. Hence, the rejection based on the combination of Rousseau et al. and Bates et al. is untenable and should be reversed. One skilled in the art would not have been motivated to add the telomers of Bates et al. to Rousseau et al., with any reasonable expectation for success of providing an electret material required by the present claims.

Issue 2

Claims 14, 15 and 24 are novel and unobvious and thus are patentable over the combination of over Rousseau et al. (U.S. Patent 6,002,017) in view of Bates et al. (U.S. Patent 5,955,546) and Midkiff et al. (U.S. Patent 5,707,735).

In the statement of this rejection, the Examiner acknowledges that Rousseau et al. and Bates et al. fail to teach multicomponent fibers, spunbond fibers and spunbond/meltblown/spunbond laminates. The Examiner finds that Midkiff et al. teaches filters from multicomponent fibers, spunbond fibers and spunbond/meltblown/spunbond laminates. The Examiner states one skilled in the art would have been motivated to use these fibers in the web "created by the combination of Rousseau and Bates" (Final Rejection, page 3).

First, Appellant points out that Midkiff et al. fails to remedy the deficiencies of Rousseau et al. in view of Bates et al. with respect to the motivation of combining this pair of references. Nothing in Midkiff et al. suggests that adding a telomer to the composition of Rousseau et al. would result in a material which could be electret treated, for the reasons stated above. Therefore, Midkiff et al. fails to remedy the noted deficiencies of Rousseau et al. and Bates et al.

While Midkiff et al. does teach filter application for spunbond fibers, and that spunbond webs and laminates thereof can be used in filter materials, the teachings of Rousseau et al. is to form meltblown nonwoven webs. The Examiner has not addressed why one skilled in the art would have been motivated to use the spunbond method of forming a web taught by Midkiff et al. in place of the meltblown method taught by Rousseau et al.

Given that Midkiff et al. does not remedy the deficiencies of the combination of Rousseau et al. and Bates et al., the combination of Midkiff et al. with Rousseau et al. and Bates et al. fails to render claims 14, 15 and 24 obvious, within the meaning of 35 USC 103.

Conclusion

For the reasons stated above, it is Appellant's position that the Examiner's rejection of claims has been shown to be untenable and should be **reversed** by the Board of Appeals.

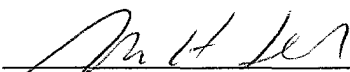
Please charge the \$320.00 fee, pursuant to 37 C.F.R. 1.17(c), for filing this Appeal Brief to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875. Any additional prosecutorial fees which are due may also be charged to deposit account number 11-0875.

The undersigned may be reached at: 770-587-7204

Respectfully submitted,

DAVID LEWIS MYERS

By:

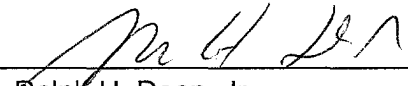


Ralph H. Dean, Jr.

Registration No.: 41,550

CERTIFICATE OF MAILING

I, Ralph H. Dean, Jr., hereby certify that on August 1, 2003 this document is being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

By: 
Ralph H. Dean, Jr.

Appendix – The Claims On Appeal

1. An electret comprising:
 - a porous polymeric material having an electrostatic charge;
 - said porous polymeric material comprising a first thermoplastic polymer and from about 0.1% by weight to about 25% by weight of a miscible thermoplastic telomer.
2. The electret of claim 1 wherein said telomer and said first thermoplastic polymer each comprise a polymer having a significant fraction of the same monomer.
3. The electret of claim 2 wherein said telomer comprises between 0.1% and about 20% of said polymeric substrate.
4. The electret of claim 3 wherein said telomer comprises between about 0.5% and 20% of said polymeric substrate.
5. The electret of claim 1 wherein said first thermoplastic polymer is selected from the group consisting of polyolefins, polyamides, polyesters, polyurethanes, polydienes, polyols, polyethers and polycarbonates.
6. The electret of claim 5 wherein said telomer has a functional end group selected from the group consisting of aldehyde, acid halide, acid anhydrides, carboxylic acids, amines, amine salts, amides, sulfonic acid amides, sulfonic acid and salts thereof, thiols, epoxides, alcohols, acyl halides, and derivatives thereof.
7. The electret of claim 6 wherein said first thermoplastic polymer is selected from the group consisting of polyethylenes, polypropylenes, and nylons.
8. The electret of claim 1 wherein said first thermoplastic polymer and said telomer each comprise a polymer having a significant fraction of propylene repeat units.
9. The electret of claim 6 wherein said first thermoplastic polymer and said telomer comprise a copolymer of propylene and ethylene.
10. The electret of claim 8 wherein said first thermoplastic polymer and said telomer comprise a copolymer of propylene and a second repeat unit.

11. The electret of claim 1 wherein said porous substrate is selected from the group consisting of fibrillated films, sintered films, porous films, woven fabrics, foams, nonwoven webs and multilayer laminates thereof.
12. The electret of claim 1,

a nonwoven web wherein the porous material comprises and wherein (i) the first thermoplastic polymer is selected from the group consisting of polyolefin and polymers.
13. The electret of claim 12 wherein said nonwoven web is selected from the group consisting of meltblown fiber webs, spunbond fiber webs, hydroentangled webs, air-laid and bonded-carded webs.
14. The electret of claim 12 wherein said nonwoven web comprises a spunbond fiber web.
15. The electret of claim 14 wherein said spunbond fiber web comprises multicomponent fibers and wherein at least one of the components of said multicomponent fiber comprises said telomer.
16. The electret of claim 12 wherein said nonwoven web comprises a meltblown fiber web.
17. The electret of claim 12 wherein the first thermoplastic polymer and said telomer each comprise an olefin polymer having a major fraction of the same monomeric unit.
18. The electret material of claim 16 wherein said first thermoplastic polymer and said telomer each comprise a polymer having a significant fraction of propylene monomer.
19. The electret of claim 18 wherein said telomer comprises a polypropylene polymer having functional end groups selected from the group consisting of acid anhydrides, carboxylic acids, amides, amines, and derivatives thereof, and wherein said telomer comprises between 0.5% and 20% by weight of said nonwoven web.
20. The electret of claim 12 wherein said first thermoplastic polymer and said telomer each comprise a polyolefin and further wherein said first thermoplastic polymer and said telomer each comprise a polymer having a significant fraction of propylene monomer.

21. The electret of claim 13 wherein fibers of said nonwoven web are formed from a blend of a first polypropylene polymer and a polypropylene telomer having at least one functional end group selected from the group consisting of carboxylic acids, acrylic acids and acrylates.
22. A face mask comprising the electret material of claim 12.
23. A sterilization wrap comprising the electret material of claim 12.
24. A sterilization wrap comprising a spunbond/meltblown/spunbond laminate wherein at least one of said layers comprises the electret material of claim 12.
25. A dust wipe comprising the electret material of claim 12.
26. An air filter material comprising the electret material of claim 12.